

## **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A method of processing data comprising:  
defining ~~an object with an option data structure which~~ instance of a class,  
the class supporting ~~supports references to options,~~ each option  
being defined in the class or through a class inheritance hierarchy  
and each option having an option name and an option values  
associated therewith,  
  
wherein the options are referenceable without preallocation  
of memory space for the full option values value when  
the instance is created, ~~wherein the object is~~  
~~instantiated from a class within a class inheritance~~  
~~hierarchy;~~ and  
  
notifying the ~~object~~ instance of a change in an selected option value of an  
~~option~~ through change handlers identified by an option binding  
object generated by a compiler to describe each option, the option  
binding object being located by first searching a mapping data  
structure for any previously computed mapping from the option  
name corresponding to the selected option value to the option  
binding object, and [[,]] if no mapping was ~~previously computed~~  
found, by then computing the a mapping from the option name  
corresponding to the selected option value to the option binding  
object and storing the mapping in the mapping data structure,  
  
wherein code for the change handlers for the option  
identified by the option binding object may be defined  
in different classes within the class inheritance  
hierarchy.

2. (Original) A method as claimed in claim 1 wherein the mapping data structure is a hash table.
3. (Currently Amended) A method as claimed in claim 1 wherein the option binding object is a most specific option binding object given a class and a base option binding.
4. (Canceled)
5. (Currently Amended) A method as claimed in claim 1 wherein an selected option ~~data structure is associated with~~ includes a default value, the method further comprising, in a get operation to the selected option in an-the instance of the class, if ~~an-the~~ option value which applies corresponding to the instance-selected option has been set, getting the set option value, and ~~and[,]~~ if ~~[[a]]~~ the option value which applies corresponding to the selected option has not been set, getting the associated default value ~~for the class~~.

6. (Currently Amended) A method as claimed in claim 1 wherein the instance of the class is associated with a listing data structure, the listing data structure comprising  
option data structure comprises

a linked list of option items, each of the option items corresponding to a referenced option comprising an option in the instance that has been referenced, and each of the option items having the option options-values value and the option name corresponding to one of the referenced options, wherein the method further comprises:

when a first option is referenced in order to set a first option value for the first option, checking the listing data structure for a first option item corresponding to the first option;

when the first option item is found, setting the first option value in the first option item; and

when no first option item is found, creating the first option item, setting the first option value in the first option item, and storing the first option item with the set first option value in the listing data structure.

7. (Currently Amended) A method as claimed in claim 1 wherein a nonlocal option value applies to other ~~objects~~ instances of the class in a nonlocal option hierarchy.

8. (Original) A method as claimed in claim 7 wherein the nonlocal option hierarchy is a graphical hierarchy.

9. (Currently Amended) A method as claimed in claim 1 wherein the class which supports the ~~option data structure includes defined fields, each field having a field value, wherein memory space is allocated for the full field to support values in preallocated memory space~~ value when the instance is created.
10. (Currently Amended) A data processing system comprising:  
an ~~object with an option data structure which~~ instance of a class, the class supporting supports references to options, each option being defined in the class or through a class inheritance hierarchy and each option having an option name and an option value associated therewith, values  
wherein the options are referenceable without preallocation of memory space for the full option values value when the instance is created ~~the object is instantiated from a class within a class inheritance hierarchy;~~  
change handlers which notify the object of a change in an option value of an option;  
an option binding object generated by a compiler to describe each option which identifies one of said change handlers; and  
a mapping data structure which maps an option name and class to the option binding object, wherein the option binding object is located by first searching the mapping data structure for a previously computed mapping to the option binding object, and [[,]] if no mapping was ~~previously computed~~ found, by then computing the ~~a~~ mapping from the option name corresponding to the selected option value to the option binding object and storing the mapping in the mapping data structure,  
wherein code for the change handlers ~~for the option~~ may be defined in different classes within the class inheritance hierarchy.

11. (Original) A system as claimed in claim 10 wherein the mapping data structure is a hash table.
12. (Currently Amended) A system as claimed in claim 10 wherein the option binding object is a most specific option binding object given a class and a base option binding.
13. (Canceled)
14. (Currently Amended) A system as claimed in claim 10 wherein an selected option is associated with ~~value data structure~~ includes a default value, which is obtained when an ~~the~~ option value corresponding to the selected option has not been set ~~in an applicable instance object~~.
15. (Currently Amended) A system as claimed in claim 10 wherein the instance of the class is associated with a listing data structure, the listing data structure comprising ~~option data structure comprises~~ a linked list of option items, each of the option items having the option values value and the option name corresponding to a referenced option comprising an option in the instance that has been referenced.
16. (Currently Amended) A system as claimed in claim 10 wherein a nonlocal option value applies to other ~~objects~~ instances of the class in a nonlocal option hierarchy.
17. (Original) A system as claimed in claim 16 wherein the nonlocal option hierarchy is a graphical hierarchy.

18. (Currently Amended) A system as claimed in claim 10 wherein the class ~~which supports the option data structure~~ includes defined fields, each field having a field value, wherein memory space is allocated for the full field to support values value in preallocated memory space when the instance is created.
19. (Currently Amended) A data processing system comprising:  
means for defining an ~~object with an option data structure which instance of a class, the class supporting~~ supports references to options, each option being defined in the class or through a class inheritance hierarchy and each option having an option name and an option-values value associated therewith,  
wherein the options are referenceable without preallocation of memory space for the full option-values value when the instance is created, ~~wherein the object is instantiated from a class within a class inheritance hierarchy;~~ and  
means for notifying the ~~object instance~~ of a change in ~~[[an]]~~ a selected option value of an option through change handlers identified by an option binding object generated by a compiler to describe each option, the option binding object being located by first searching a mapping data structure for any previously computed mapping from the option name corresponding to the selected option value to the option binding object, and ~~[[,]]~~ if no mapping was ~~previously computed found,~~ by then computing the a mapping from the option name corresponding to the selected option value to the option binding object and storing the mapping in the mapping data structure,  
wherein code for the change handlers for the option identified by the option binding object may be defined

in different classes within the class inheritance hierarchy.

20. (Currently Amended) A computer program product comprising:
- a computer usable medium for storing data; and
  - a set of computer program instructions embodied on the computer usable medium, including instructions to:
    - define ~~an object with an option data structure which~~ instance of a class, the class supporting ~~supports references to options,~~ each option being defined in the class or through a class inheritance hierarchy and each option having an option name and an option values-value associated therewith,
    - wherein the options are referenceable without
      - preallocation of memory space for the full
      - option values value when the instance is
      - created, ~~wherein the object is instantiated from~~
      - ~~a class within a class inheritance hierarchy;~~
    - and
    - notify the ~~object~~ instance of a change in an selected option value of ~~an option through change handlers identified by an option binding object generated by a compiler to describe each option,~~ the option binding object being located by first searching a mapping data structure for any previously computed mapping from the option name corresponding to the selected option value to the option binding object, and~~[[,]]~~ if no mapping was ~~previously computed~~ found, by then computing the a mapping from the option name corresponding to the selected option value to the option binding object and storing the mapping in the mapping data structure,

wherein code for the change handlers ~~for the option-~~  
identified by the option binding object may be  
defined in different classes within the class  
inheritance hierarchy.

21. (Currently Amended) A product as claimed in claim 20 wherein the instance of the class is associated with a listing data structure, the listing data structure comprising ~~option data structure comprises~~ a linked list of option items, each of the option items having the option values value and the option name corresponding to a referenced option comprising an option in the instance that has been referenced.
22. (Canceled)
23. (Currently Amended) The method of claim 1, wherein the code for one or more of the change handlers is executed when the selected option value changes.
24. (Currently Amended) The system of claim 10, wherein the code for one or more of the change handlers is executed when the selected option value changes.
25. (Currently Amended) The system of claim 19, wherein the code for one or more of the change handlers is executed when the selected option value changes.
26. (Currently Amended) The product of claim 20, wherein the code for one or more of the change handlers is executed when the selected option value changes.